Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of RECONROBOTICS, INC. Request for Waiver of Part 90 of the Commission's Rules By W. Lee McVey, P.E. W6EM PG-12-19879 To: The Chief, Wireless Telecommunications Bureau	)	**WT Docket No. 08-63** **FCC No. DA_10-291**

PETITION FOR RECONSIDERATION OF WAIVER GRANT TO

RECONROBOTICS, INC.

INTRODUCTION AND DISCUSSION

1. The undersigned, pursuant to Section 1.429(b) of the Commission's rules, (47 C.F.R. §1.429(b)) seeks reconsideration of Order DA 10-291, adopted February 22, 2010, in which the Commission granted permission for the restricted operation of a video transmitter device manufactured by ReconRobotics, Inc.[1] in the 430-448 MHz band.

2. Also, by way of this Petition, I request initiation of Commission enforcement, under Section 301of the Communications Act of 1934, as amended, (47U.S.C.§301, *et.seq*.) with respect to marketing, sale and operation of unlicensed, uncertified ReconRobotics devices from 2007 to present within the continental United States. ReconRobotics, Inc., at various times and places from before the waiver request filing until now, has encouraged and facilitated the unlicensed, possibly unlawful operation of their video transmitting devices by police agencies in Burnsville, Minnesota; Huntington Park, California; Marietta, Georgia; and Orlando, Florida.[2]

[1] Recon Robotics, Inc. 7620 West 78th Street
Edina, MN 55439.

[2] Documents available from http://www.reconrobotics.com/pdfs/Recon_Scout_Burnsville_Profile.pdf; http://www.reconrobotics.com/pdfs/Recon-Scout_Huntington_Park_Profile.pdf;

3. As further justification for Reconsideration, ReconRobotics introduced e*x parte* information after the official Comment and Reply Comment periods had closed to justify only the continued use of the 430-448MHz segment in lieu of other, higher frequency bands.[3] Thus, those wishing to comment on the new material were denied an opportunity to do so, and are left to file Petitions for Reconsideration if they wish to do so.

4. It is the burden of a Petitioner to show either new material absent from the initial proceedings or that circumstances have changed materially from the initial application. [4] The fundamental basis for this Petition filing rests first in the discovery that the applicant has been encouraging and expanding unlicensed operation of the robot devices, even after being made aware that it is and has been unlawful to do so. Knowledge of such activity was not in the record of the waiver request or the Commission's Order. Reconsideration is further justified based upon inconsistent, flawed tests conducted by the applicant following the closure of the Comment period of the proceeding. The test data do not sufficiently justify using only the 430-448MHz instead of other, higher frequency bands for the devices. No commentary

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http://www.reconrobotics.com/pdfs/Recon_Scout_Marietta_Profile.pdf; http://www.reconrobotics.com/pdfs/Recon-Scout_Orlando_Profile.pdf; and as Appendices A through D.

[3] *Ex parte* letter response of November 3, 2008, to Ms. Marlene Dortch, Secretary and Attachement entitled Empirical Study of the Effects of 434MHz vs. 915MHz Frequency Band on the Performance of the Recon Scout.

[4] 47CFR§1.429(b)1&2.

on the tests could be entered into the record since the test data used for comparative purposes was not submitted as part of the waiver request.

MARKETING AND USE OF UNLICENSED RECONROBOTICS ROBOTS

5. According to their literature, ReconRobotics devices were developed under a Defense Advanced Research Projects Agency (DARPA) grant for use by our military outside the continental United States in battlefield conditions. Use under such circumstances does not require a license or equipment certification from the Commission. However, operation in the United States by non-federal users requires licensure under Title 47USC§301 of the Communications Act of 1934, *et. seq.*

6 ReconRobotics' website contains summaries of ongoing, continuous usage of their robots by four police agencies. Copies of the literature from its website were downloaded and are submitted in Adobe® portable document format as Appendices A through D of this Petition. In the case of the Burnsville, Minnesota, Huntington Park, California, and Orlando, Florida Police Departments, statements in Appendices A, B and D indicate use of the robots began in 2007. In Appendix C, Marietta, Georgia, usage was said to have begun in late 2009.

7 At some point prior to submitting a request for waiver of the Commission's rules, ReconRobotics must have realized that continued, unlicensed operation would be unlawful, or else there would have been no request for waiver of Part 90 of the Commission's rules in the first place. There is nothing in the record to indicate a request for lawful, temporary trial uses. There was not a request for, the grant of, or a denial of any Special Temporary Authority (STA) by the Commission's Office of Engineering and Technology or any other Commission subdivision for permission to use the devices on an experimental or trial basis at any of the four locations. It is also doubtful that any of those users were notified by ReconRobotics to cease operation pending a successful waiver request and subsequent licensure. No such statements to that affect are in the filings and associated *ex parte* literature about the ongoing use of the devices by any of these users. According to the ReconRobotics literature, the Marietta, Georgia Police Department began using the units long after the waiver proceedings began in 2008, without a waiver or a license to operate the device(s)[5]. ReconRobotics most certainly knew after the waiver filing that continued operation was unlawful, yet it continued to sell, support and market the robot devices to United States law enforcement agencies. Interestingly, its counsel, Mr. Mitchell Lazarus, in his *ex parte* letter of December 11, 2009, included a clipped appeal to use the device on behalf of a police officer. He made no mention of the Marietta, Georgia Police

[5] Appendix C.

Department's 2009 acquisition at nearly the same time or of any of the other three departments continuing to use the robots since 2007[6]. Apparently, Mr. Lazarus believed that only appeals to use the device lawfully would be of interest to the Commission, not ongoing unlawful, unlicensed uses.

JUSTIFICATION FOR CONTINUED USE OF 430-448MHZ FLAWED

8. During an e*x parte* meeting of October 7, 2008, Commission representatives asked for data as to how operation at 900-928 and 2400-2483MHz would compare to operation from 430-448MHz.[7] ReconRobotics responded by conducting tests after the request was made comparing 430MHz to 915MHz.[8] This, even though their initial request for waiver contained statements of conclusions with respect to unsatisfactory operation on higher frequency bands.[9] No factual data from any test comparisons had been offered by ReconRobotics prior to the staff request for any other frequency bands. Even though specifically requested, no test data were submitted for 2400-2483MHz operation to compare with 430-448MHz.

[6] 08-63 ExParte letter of December 11, 2009 to Ms. Marlene H. Dortch, Secretary of the Commission.
[7] 08-63 ExParte Letter of November 3, 2008, to Ms. Dortch.
[8] Empirical Study of the Effects of 434 MHz vs. 915 MHz Frequency Band on the Performance of the Recon Scout. Attachment to November 3, 2008 letter submitted in 7.
[9] See Request for Waiver, filed January 11, 2008, p.2.

9. The location selected for the comparative tests was a church with poured concrete outer walls and concrete –masonry-unit interior walls.[10] The location was selected, according to the submittal, so as to minimize any exterior windows and was offered as a typical commercial or residential structure encounted in law enforcement and firefighting scenarios.[11]

10. While comparative studies are useful by advocates, they may lack objectivity in selecting test protocols, conditions and parameters for testing. In the instant example, windowless solid concrete walls are somewhat rare, as most commercial occupancies contain only concrete-masonry-unit block exterior walls with only intermittent cells filled with poured concrete. Most structures encountered by public safety officers would more typically be wood frame, with various facia or steel frame with substantial glass or other more easily penetrable media on their exteriors. The purported reason for reducing multipath effects was likely less of an issue in site selection than was attempting to obtain a location offering the greatest radio frequency (RF) attenuation from interior structural walls. To be consistent with field use of the devices, the robot transmitter units should have been moved from room to room, while the spectrum analyzer and hand held receivers placed in a fixed location outside the building, not the other way around.

[10] St. Victoria Catholic Church, Victoria, MN.
[11] See study referenced in footnote **8**.

11. As to the comparison of weights, it is unrealistic that a 915MHz transmitter with equivalent RF output power should more than double the weight of the throwable unit[12]. A reasonable explanation why that would be the case was omitted. As a corollary, hand held two-way radios that operate from 700MHz to 900MHz are routinely carried by law enforcement and fire fighting personnel. And, they are of similar output power and weight as are comparable 450MHz units. Public safety response personnel have used 900MHz hand held radios to communicate from inside to outside such building environments for years. Even more to the point, as a simplistic comparative, cellular telephone handsets that use nearby 800MHz spectrum exchange broadband digital content, including images, using less than 500mW of output power and routinely function successfully from inside commercial and residential structures.

12. The comments denying the suitability of narrow bandwidth digital video versus analog video are unsupportable. It is common knowledge that a narrow bandwidth emission would require less energy than a continuous, wide bandwidth transmission to convey the same information. Hence, more effective penetration power, greater range, and greater unit operating time would be obtained from a narrow bandwidth digital signal than from a 6MHz-wide analog bandwidth, irrespective of the frequency band.

[12] See e*x parte* letter of November 3, 2009, p. 4.

13. The data with regard to the received signal strengths reportedly captured by the Rhode and Schwartz spectrum analyzer were comparative and included in Table 2[13]. No details were given on placement of the spectrum analyzer relative to the robot video receiver device, leaving one to assume that both the analyzer and two video receivers are at the identical same location and are carried together from position to position at all times. Inconsistencies in the subjective evaluation of displayed video images begs explanation, yet none was offered. For instance, a received 915MHz signal level of –63dBm at location "R6" in Table 2 received a video picture rating of "1," on a scale of "1" being poor and "5" being excellent, while a lower received signal level of –65dBm at location "R7" received a rating of "5," or perfect. With such data inconsistency, it appears that there was a problem with the 915 MHz hand held video receiver or its antenna. There was also no explanation why a signal level of –27dBm at ""R2" only received a video display rating of "4" instead of "5" at a distance of only 3.4 meters with no intervening walls. Perhaps the most unusual example was at "R5," with a very weak received signal level of –74dBm, yet an almost perfect video picture rating of "4." Identical to the "4" video rating given a received signal level 50dB greater at "R2."

[13] Id. P. 8.

14. We are not provided with specifications for either the 430MHz or 915MHz video receivers to verify that input sensitivities and signal-to-noise ratios of the two receivers are identical. A ½ wavelength vertical antenna was said to have been attached to the 915MHz receiver that ostensibly offered 3dB of power gain over a ¼ wave antenna. However, nothing is said of a matching network to properly match the impedance of the ½ wavelength antenna to the 915MHz receiver input to realize that gain instead of a loss due to a possible mismatch. Standardized, unity-gain antennas such as the Laird models used on the Rohde and Schwartz spectrum analyzer would have permitted more consistent and accurate comparisons of received video quality on both frequency bands.

SUMMARY DISCUSSION AND REQUEST FOR REVOCATION

15. The United States justice system provides for equal treatment under the law. That is to say, persons and entities subject to its laws, rules and regulations are to be held to the same standards given similar circumstances. The Communications Act offers no special privilege of unlicensed operation or marketing and sale of non-type-accepted radio frequency transmitting apparatus to local government agencies. The grant of waiver from rules violations and the privilege of obtaining licenses for those who have egregiously violated laws, rules and regulations is akin to awarding broadcast

station licenses and equipment certifications to pirate FM broadcasters and equipment manufacturers in lieu of their prosecution.[14] On the other hand, perhaps it is further evidence of a new trend by the Commission. One where it ignores serious violations by subdivisions of state and local government. In early 2009, it was reported that over one hundred Indianapolis, Indiana police officers routinely had been using 144-148MHz amateur transmitters in their police vehicles as a "back channel," without any being licensed amateur radio operators.[15] In that instance, the Commission's Enforcement Bureau reportedly only made a telephone call to the Indianapolis Chief of Police and requested that it stop, with no further action taken by the Commission after reportedly years of unlicensed operation and violation of 47USC§301 by police officers and their supervision.

16. The testing of the ReconRobotics robot units at 915MHz to attempt to justify the only suitable band being 430-448MHz was clearly flawed, yet the Commission apparently chose to accept ReconRobotics unjustified conclusion that higher frequency bands would not offer satisfactory coverage from inside buildings. Since that appears to be the case, then how can the Commission, on one hand, continue to endorse the migration of public safety agencies away from existing, VHF and 450MHz systems to 700MHz systems, if doing so would, *in any way*, compromise

[14] FCC **DA**00475, **EB**01-61. For manufacturre, sale and operation of unlicensed, uncertified broadcast transmitters.

communications effectiveness by public safety officers and firefighters to and from building structures? Clearly, the applicant has not demonstrated that utilization of higher frequency bands to communicate with its robot devices would excessively burden the future users of such devices with diminished performance.

17. With the above being said, I respectfully request that the Commission withdraw and revoke the granted waiver Order and dismiss the application of ReconRobotics, Inc., from any further consideration, along with initiation of applicable enforcement actions. Anything less will affirm that the following words, found on the Commission Enforcement Bureau's Web site[16], are meant only for ordinary citizens, not for those held in special esteem by Commission staff: *"The Commission takes enforcement of Section 301 seriously. Parties found operating radio stations without FCC authorization will be subject to a variety of enforcement actions including seizure of equipment, imposition of monetary forfeitures, ineligibility to hold any FCC license, and criminal penalties."*

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[15] http://www.officer.com/web/online/Top-News-Stories/Indianapolis-Officers-Must-Stop-Profane-Talk-on-Illegal-Radios/1$45527; Amateur Radio *Newsline* Report 1646, February 27, 2009; http://www.theindychannel.com/video/18779383/index.html

[16] http://www.fcc.gov/eb/sed/ulo.html

Respectfully Submitted,

/s/

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Attachments(s) Appendices A through D.